

**REMARKS**

Claims 1-22 are pending in this application. For purposes of expedition, claims 23-25 have been canceled without prejudice or disclaimer. Claims 1-22 have been amended in several particulars for purposes of clarity and brevity that are unrelated to patentability and prior art rejections in accordance with current Office policy, to further and alternatively define Applicants' disclosed invention and to assist the Examiner to expedite compact prosecution of the instant application.

Claims 23-25 have been rejected under 35 U.S.C. §101 for reasons stated on pages 2-4 of the Office Action (Paper No. 20070725). Specifically, the Examiner alleges that claims 23-25 merely claim "non-functional descriptive material" recorded on a readable medium, which is not statutory under 35 U.S.C. §101. According to the Examiner, the definition of "non-functional descriptive material" includes but is not limited to music, literary works and compilation or mere arrangement of data. See MPEP §2106, Sec., IV, B1. While Applicants disagree with the Examiner's assertion, claims 23-25 have been canceled without prejudice or disclaimer to render the rejection moot.

Claims 1-3 and 16-25 have been rejected under 35 U.S.C. §102(e) as being anticipated by Melas, U.S. Publication No. 2002/0171961 for reasons stated on pages 4-6 of the Office Action. In support of the rejection of base claims 1, 18 and 23 [now canceled without prejudice or disclaimer], the Examiner cites FIG. 2, element 214; paragraphs [0009]-[0011], [0030] and [0034] of Melas '961 for allegedly disclosing "a first signal processor nonlinearly converting the input signal based on a result of comparing an absolute value of the input signal and a predetermined critical value". However, the Examiner's citation is misplaced. Therefore, Applicants respectfully traverse the rejection for the following reasons.

Melas '961 discloses a data detection circuit that is similar to that disclosed in the Background of Applicants' disclosure. For example, FIG. 1 of Applicants' disclosure illustrates a data detection circuit that comprises an A/D converter 110, a Viterbi decoder 150 and an equalizer 140 disposed between the A/D converter 110 and the Viterbi decoder 150 to compensate for an error included in digital data without DC offset. Similarly to FIG. 1 of Applicants' disclosure, the data detection circuit of Melas '961 also comprises an A/D converter

206, a Viberti decoder (including both PRML detector 210 and decoder 212), and a pair of linear and non-linear equalizers 208 and 214 disposed between the A/D converter 206 and the Viberti decoder 210, 212. According to Melas '961, the linear equalizer 208 is used to adjust the amplitude and phase relations of the sampled signal, and the nonlinear equalizer 214 is used to output a partial response sampled signal having two nonzero samples.

In other words, the equalizers 208 and 214 of Melas '961 perform similar functions as that disclosed in FIG. 1 of Applicants' disclosure. However, there is **no** disclosure from Melas '961 of Applicants' claimed "[first signal processor] nonlinearly converting the input signal based on a result of comparing an absolute value of the input signal and a predetermined critical value" as expressly defined in the now pending claims 1 and 18.

The rule under 35 U.S.C. §102 is well settled that anticipation requires that each and every element of the claimed invention be disclosed in a single prior art reference. In re Paulsen, 30 F.3d 1475, 31 USPQ2d 1671 (Fed. Cir. 1994); In re Spada, 911 F.2d 705, 15 USPQ2d 1655 (Fed. Cir. 1990). Those elements must either be inherent or disclosed expressly and must be arranged as in the claim. Richardson v. Suzuki Motor Co., 868 F.2d 1226, 9 USPQ2d 1913 (Fed. Cir. 1989); Constant v. Advanced Micro-Devices, Inc., 848 F.2d 1560, 7 USPQ2d 1057 (Fed. Cir. 1988); Verdegall Bros., Inc. v. Union Oil Co., 814 F.2d 628, 2 USPQ2d 1051 (Fed. Cir. 1987). The corollary of that rule is that absence from the reference of any claimed element negates anticipation. Kloster Speedsteel AB v. Crucible Inc., 793 F.2d 1565, 230 USPQ2d 81 (Fed. Cir. 1986).

The burden of establishing a basis for denying patentability of a claimed invention rests upon the Examiner. The limitations required by the claims cannot be ignored. See In re Wilson, 424 F.2d 1382, 165 USPQ 494 (CCPA 1970). All claim limitations, including those which are functional, must be considered. See In re Oelrich, 666 F.2d 578, 212 USPQ 323 (CCPA 1981). Hence, all words in a claim must be considered in deciding the patentability of that claim against the prior art. Each word in a claim must be given its proper meaning, as construed by a person skilled in the art. Where required to determine the scope of a recited term, the disclosure may be used. See In re Barr, 444 F.2d 588, 170 USPQ 330 (CCPA 1971).

In the present situation, Melas '961 fails to disclose and suggest features of Applicants' claims 1, 18 and 23. Nevertheless, base claims 1, 18 and 23 have been amended to further clarify distinguishable features relative to Melas '961. Therefore, Applicants respectfully request

that the rejection of claims 1-3 and 16-25 be withdrawn.

With respect to dependent claims 2 and 19, and dependent claims 3 and 20, the Examiner asserts that Melas '961 inherently discloses a specific type of nonlinear filter used, that is, the input [digital] signal is saturated when the absolute value of the input [digital] signal is larger than the predetermined critical value, and the input [digital] signal is output as the nonlinearly converted signal when the absolute value of the input [digital] signal is smaller than the predetermined critical value, and that the first signal processor outputs "a difference of the absolute value of the input signal and the critical value when the absolute value of the input signal is bigger than the critical value and outputs zero when the absolute value of the input signal is smaller than the critical value". However, the Examiner's assertions are incorrect for at least two reasons.

First, Melas '961 only discloses the use of equalizers, and does **not** even disclose the use of non-linear converter to convert the input signal based on a result of comparing an absolute value of the input signal and a predetermined critical value, as defined in Applicants' base claims 1, 18 and 23 [now canceled without prejudice or disclaimer]. As a result, there is **no** disclosure from Melas '961 of any nonlinear function based on two different types of nonlinear filters used, that is, when "a" is zero (0), as shown in FIGs. 6A-6B, or when "a" is one (1), as shown in FIGs. 6C-6D, as defined in Applicants' claims 2 and 19 and Applicants' claims 3 and 20.

Second, as a matter of law, inherency requires certainly, not speculation. The fact that a certain characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that characteristic. In re Rijckaert, 9 F.3d 1531, 28 USPQ2d 1955 (Fed. Cir. 1993); and In re Oelrich, 666 F.2d 578, 581-82, 212 USPQ 322, 326 (CCPA 1981). "To establish inherency, the extrinsic evidence must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill." Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient. In re Robertson, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999). In relying upon the theory of inherency, the Examiner must provide a basis in fact and technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art. Ex Parte Levy, 17 USPQ 2d 1461, 1464 (Bd. Pat. App. & Inter. 1990).

In the present situation, there is simply **no** basis in fact for the Examiner to allege that Melas '961 inherently teaches features of Applicants' claims 2 and 19 and Applicants' claims 3 and 20.

Similarly, with respect to claims 21 and 22, the Examiner also asserts that Melas '961 discloses the nonlinear function according to the equation as defined. However, for reasons discussed above, there is **no** disclosure from Melas '961 of any nonlinear function based on the specific equation as defined in Applicants' claims 21 and 22.

Lastly, claims 4-15 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Melas, U.S. Publication No. 2002/0171961 in view of Raz, U.S. Patent No. 6,639,537 for reasons stated on pages 6-7 of the Office Action. Since this rejection is predicated upon the correctness of the rejection of Applicants' base claims, Applicants respectfully traverse these rejections primarily based on the same reasons discussed against the rejection of their base claim 1.

In view of the foregoing amendments, arguments and remarks, all claims are deemed to be allowable and this application is believed to be in condition to be passed to issue. Should any questions remain unresolved, the Examiner is requested to telephone Applicants' attorney at the Washington DC office at (202) 216-9505 ext. 232.

To the extent necessary, Applicants petition for an extension of time under 37 CFR §1.136. If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 503333.

Respectfully submitted,

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